

**Federal Aviation Administration - Fairbanks Flight Standards District Office**  
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## **AIRWORTHINESS NEWSLETTER**

*for Inspection Authorization Holders, A&Ps, and Repairmen*

*Larry E. Dalrymple - Manager*  
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*James H. Tupper - Airworthiness Supervisor*

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### **INTRODUCTION**

August is here again, already? The summers sure go fast, don't they? It's time again for the highly accurate, long awaited, and hopefully, informative and entertaining newsletter. Don't forget this publication is for you, the maintenance professional. Your comments and suggestions for improvement are valuable and we encourage your participation as critics and contributors. Our editors are kind and merciful.

### **INSPECTORS**

Since the last publication we have lost one inspector (Dan Walsh left us for "warmer" climes), and picked up John Sims, compliments of the Juneau FSDO.

#### **Fairbanks Airworthiness Inspectors:**

James H. Tupper - Supervisor  
George W. Earp  
John Q. Gamble  
Caleb A. Glick  
Harley A. Holt  
Eric L. Jones

Hugh A. Keith  
Steve Ketzer Jr.  
Cary J. Meier  
Kenneth C. Thomas  
John W. Sims

You may contact them by phone at (907) 474-0276, or by email using the following format: first name.middle initial.last name@faa.gov. No spaces, no caps. If you have questions or a problem, give them a call. They are here to help you!

### **SUBJECTS FOR UPCOMING A/W SAFETY MEETINGS**

We are in the process of lining up presenters for the upcoming season of airworthiness seminars. We have verbal agreements from a few of the vendors and are working with others to provide you with interesting and informative meetings. Nothing is set in concrete, but here's a partial line up.

- Aircraft Fasteners and Hardware (Textron)
- Engine Lubrication Systems (Aeroshell)
- Maintenance Factors in Accidents (NTSB)
- Human Factors for Maintenance, Dispatchers, Ramp Personnel, etc. (FAA, CAMI)
- Lycoming Engines
- Cold Weather Maintenance/Operations
- Basic Electrical Theory (FSDO)

This season, we hope to do a better job of presenting more of these subjects in the outlying sites (OTZ, BRW, OME, etc.), as well as Fairbanks. We'll try to get the schedules out well in advance so you can plan to attend. If there are particular topics you would like to see highlighted, or if you would be willing to make a presentation (hint, hint), all you need to do is contact the Safety Program Team: Kathy Thomas (907-457-9235) or George Earp (907-457-9237). They will do their best to make your meeting idea a reality. Also, if you have any questions about the Safety Program, contact one of them.

## QUESTIONS & ANSWERS, ARTICLES, AND OTHER INTERESTING STUFF.

*More of Steve Ketzer's Black-&-White, Take-it-to-the-Bank, thoroughly researched Q&A's*

Q: Oh man, I lost my A&P certificate, and I have a job interview on Friday. Can I get another certificate by then?

A: Well, sort of. Check out CFR 65.16 and the FAA Inspector's Handbook, Order 8300.10, Volume 2, Chapter 22. You can get a telegram from the Airman Certification Branch in Oklahoma confirming the certificate was issued. The telegram may be carried as a certificate for 60 days. In the meantime, a reissue of your certificate will be mailed to you.

Q: Can't you guys at the FSDO just give me a temporary?

A: Yeah, we can, but, according to the 8300.10, it's considered an emergency replacement, and must meet the following conditions:

- a. You must show that an immediate replacement is necessary to start or continue employment.
- b. You have to show that it is not possible or feasible to obtain a telegram according to CFR 65.16(d).
- c. You must be known personally by the inspector or present acceptable evidence of identity.

Q: Oh, while I'm here, I have a 337 for you. My friend is an IA and we did some work down in Bethel, a major repair. You do get the 337, right?

A: Hmmm, well, not really, and again this is out of 8300.10, when the IA operates away from the district office having responsibility and holding his file, the IA should notify that district office, i.e., the IA should notify the district office where he's going to be working. If the work results in a 337, that FAA Form 337 should be submitted to the district office where the work was performed. Bottom line: if you're working down in Anchorage district, you should touch base with those boys.

### **Torque Wrenches and Other Test Equipment**

Inspector Cary Meier posed a question to the folks at Snap-On Tools about the calibration interval for precision torque wrenches. They referred him to page 264 of their 500 catalog that states:

“Periodic recalibration is necessary to maintain accuracy of any torque wrench. Recalibrate every 6 months or more frequently depending on use.”

Use is going to influence the calibration interval of any tool or piece of test equipment. If a tool is used three times a week at 20% of full scale, it is probably going to require calibration less often than the one that is used all day, every day, at 95% full scale. By the same token, the portable VOR/ILS tester that gets hauled up and down the flight line, summer and winter, rain and shine, is probably going to require more frequent calibration than the test equipment that stays inside, on a padded bench, in a temperature-controlled shop.

How can you determine if your torque tool or equipment needs more frequent calibration? Ask the manufacturer or your friendly calibration lab for a “before and after” report. When a particular tool or piece of test equipment is consistently within tolerance and requires only minor adjustment to return it to optimum when it arrives at the calibration facility, then the interval is ok. Equipment that frequently arrives at the cal facility within tolerance, but requiring major adjustment, may call for a shorter calibration interval, or possibly, the selection of a different tool. It's a good practice to select a tool so that the typical test readings will be around mid-scale. This is particularly important with tools and equipment that have analog (needle and scale) indicators.

## What Happened?

*The flight instructor who was involved in the story contributed this article. No names are mentioned, but the story is true. AC-20-143, 6/06/00, addresses this very issue and is strongly recommended for your list of important reading material.*

“Pull the throttle back!” shouted the instructor as the RPM climbed past 2000 on engine start-up. “I did, I did!” replied the student. Both the student and instructor grabbed the mixture and pulled. The engine went from runaway-roaring to silence. They looked at each other thinking the same question, “What happened?”

After removing the Cessna 152’s cowlings the answer was dead-obvious. The throttle rod-end was not connected to the carburetor arm. No hardware anywhere, no bolt, no nut, just air between the rod-end and the arm. The “what-ifs” surfaced in the student’s questions. “What if this had happened in-flight? What if the throttle had been in the idle position? What if...” Then suddenly the student asked, “How did this happen?”

The previous day, an annual inspection had been signed off after a lengthy inspection by a local facility. Several mechanics had been involved in the inspection, including the owner/student pilot who had installed a headliner. The IA who signed off the annual was very busy supervising several annuals, so most of the maintenance was performed by other mechanics.

After the inspection, the engine had been run-up as per usual post inspection procedures. The student and instructor had flown the airplane for a half-hour familiarization flight. The next day’s engine start resulted in a runaway engine, screeching tires, and a shaken student pilot. Intuitively, the cause of the runaway engine was due to the lack of the throttle rod-end hardware being safetied.

Using proverbial 20/20 hindsight, several deficiencies in this annual inspection have been identified by a round-table discussion group of A&P mechanics (including the student pilot). These areas include:

- Lack of Responsibility
- Checklist Misuse
- Complacency

First of all, someone must take responsibility for the entire inspection. The more mechanics that are involved and the more removed the responsible person is from the actual maintenance, the greater the chances of something being overlooked become. The student pilot remembers hearing the IA ask one of the engine mechanics about the throttle. However, the answer was vague, the question was vague, and apparently the rod-end was not safetied.

This leads into checklist misuse. All checklists have a line item regarding inspection of the engine controls for rigging and safety. Perhaps the throttle rod-end had been disconnected for maintenance after the inspector had signed off the control inspection. In that case, a discrepancy should have been entered onto the discrepancy sheet, “reconnect and safety throttle rod-end.”

Complacency is an insidious and hard to identify attitude in oneself. Each of the mechanics involved in the incident thought that someone else had inspected the throttle rod-end. The IA who signed off the annual inspection was confident that all was well because he had either asked the mechanics about the items on the checklist, or in his frequent visits to the airplane had inspected the various items himself. Complacency crippled the mechanic’s quality of work by removing any thoughts of double-checking each other’s work.

While a definite answer to the student pilot’s question remains a matter of speculation, professional mechanics should heed the warning signs of potential problems. A combination of a lengthy inspection, many involved technicians, an overworked supervisor, and poor checklist procedures and communications should send up a mental red flag of caution. Although the ultimate responsibility for the safety of any flight rests with the pilot-in-command, it is not unreasonable for the pilot to assume that mechanics also take their responsibility seriously.

## Piston Engine Crankcase Breather Ice Protection

*Good information to keep in mind, especially with cold weather just around the corner. This was provided by inspector Hugh Keith and comes from the June 2000 issue of AC-43-16A.*

Recently, a small, single engine type certificated airplane experienced an engine failure due to a reported frozen crankcase breather line. The engine reportedly seized after all the oil was lost (presumably through the front crankcase seal). When this happens on a single engine airplane, the lost oil usually obstructs the windshield, which further adds to the pilot's difficulty in making a safe, emergency landing.

The FAA has repeatedly issued Airworthiness Directives and Alerts on this subject, which can be adequately resolved simply by ensuring that there is a number .250 (1/4 inch) hole in the breather line at least 6 inches (a maximum of 9 inches) from the end of the line where it exits the cowl. Therefore, maintenance personnel are encouraged to verify that all piston-powered aircraft are adequately protected with a method of crankcase breather ice protection. It should be noted the ice actually forms from moisture inside of the breather line during operations at below freezing ambient temperatures. During crash investigation of aircraft that have experienced this condition, a cylinder of ice is usually found in the crankcase breather line that is a minimum of 2 inches in length. An ice cylinder up to a maximum length of 4 inches is sometimes detected. Obviously, environmental conditions suitable for airframe icing do not need to exist for crankcase breather icing to occur. Addition of the alternate ice hole will only provide for an alternate breather outlet when the exposed end of the line freezes over.

Installation of the .250-inch hole in the breather line will sometimes result in an oil streak on the interior of the engine nacelle or on the fuselage. However, this is considered to be a small price to pay for such significant protection of the engine installation.

#### **Lycoming Mandatory Service Bulletin No. 543**

Refers to leaks around the oil filter seals on the TIO-540-J2BD and LTIO-540-J2BD engines. One operator in this district had an in-flight engine fire as a result of this problem. It is important to note that the problem can also exist on any Lycoming engine equipped with dual magnetos.

#### **In Closing:**

Please share this newsletter with you're A&P buddies.

**'till next time:**

